WHAT IS CLAIMED IS:

1. A method for information indication, performed by a user equipment (UE), comprising:

obtaining indication information comprising at least one transmission configuration indication (TCI) state index (ID) corresponding to at least one codepoint; and

performing at least one of:

determining that a TCI state corresponding to the at least one TCI state ID is at least one of a joint TCI state or a separate TCI state, or

determining that the TCI state is suitable for at least one of uplink transmission or downlink reception;

wherein performing at least one of determining that the TCI state corresponding to the at least one TCI state ID is at least one of the joint TCI state or the separate TCI state, or determining that the TCI state is configured for at least one of uplink transmission or downlink reception, comprises:

determining according to a number of TCI state ID(s) corresponding to the codepoint.

2. The method of claim 1, wherein the indication information further comprises a first indication field, the first indication field indicating any of:

the indication information only activating the joint TCI state;

the indication information only activating the separate TCI state; or

the indication information activating the joint TCI state and the separate TCI state.

3. The method of claim 2, wherein the first indication field indicating the indication information only activating the joint TCI state comprises:

the indication information indicating at most one TCI state ID corresponding to each codepoint, a TCI state corresponding to the one TCI state ID being the joint TCI state, and the joint TCI state being configured for uplink transmission and downlink reception.

4. The method of claim 2, wherein the first indication field indicating the indication information only activating the separate TCI state comprises at least one of:

the indication information indicating one TCI state ID corresponding to a first codepoint,

a TCI state corresponding to the one TCI state ID being a separate downlink (DL) TCI state or a separate uplink (UL) TCI state, wherein the separate DL TCI state is configured for downlink reception and the separate UL TCI state is configured for uplink transmission; or

the indication information indicating a plurality of TCI state IDs corresponding to a second codepoint, the plurality of TCI state IDs being corresponding to different TCI states, a first TCI state ID among the plurality of TCI state IDs being a separate DL TCI state, and a second TCI state ID among the plurality of TCI state IDs being a separate UL TCI state, wherein the separate DL TCI state is configured for downlink reception and the separate UL TCI state is configured for uplink transmission.

5. The method of claim 2, wherein the first indication field indicating the indication information activating the joint TCI state and the separate TCI state comprises at least one of:

the indication information indicating one TCI state ID corresponding to a first codepoint, a TCI state corresponding to the one TCI state ID being a separate downlink (DL) TCI state or a separate uplink (UL) TCI state, wherein the separate DL TCI state is configured for downlink reception and the separate UL TCI state is configured for uplink transmission;

the indication information indicating a plurality of TCI state IDs corresponding to a second codepoint, the plurality of TCI state IDs being corresponding to a same TCI state, the same TCI state being the joint TCI state, and the joint TCI state being configured for uplink transmission and downlink reception; or

the indication information indicating a plurality of TCI state IDs corresponding to a third codepoint, the plurality of TCI state IDs being corresponding to different TCI states, a TCI state corresponding to a first TCI state ID among the plurality of TCI state IDs being a separate DL TCI state, and a TCI state corresponding to a second TCI state ID among the plurality of TCI state IDs being a separate UL TCI state.

6. The method of claim 2, wherein the determining that the TCI state is suitable for at least one of uplink transmission or downlink reception comprises at least one of:

determining according to an ID value of the at least one TCI state ID corresponding to the codepoint;

determining according to a TCI state pool ID to which the at least one TCI state ID

corresponding to the codepoint belongs;

determining according to uplink and downlink purpose information of the at least one TCI state ID corresponding to the codepoint;

determining according to TCI state information of the at least one TCI state ID corresponding to the codepoint; or

determining according to a location of an indication field of the at least one TCI state ID corresponding to the codepoint in the indication information.

7. The method of claim 1, wherein performing at least one of determining that the TCI state corresponding to the at least one TCI state ID is at least one of the joint TCI state or the separate TCI state, or determining that the TCI state is configured for at least one of uplink transmission or downlink reception, further comprises at least one of:

determining according to whether or not a plurality of TCI state IDs corresponding to the codepoint are the same;

determining according to whether or not TCI states corresponding to a plurality of TCI state IDs corresponding to the codepoint are the same;

determining according to an ID value of the at least one TCI state ID corresponding to the codepoint;

determining according to a TCI state pool ID to which the at least one TCI state ID corresponding to the codepoint belongs;

determining according to uplink and downlink purpose information of the at least one TCI state ID corresponding to the codepoint;

determining according to TCI state information of the at least one TCI state ID corresponding to the codepoint; or

determining according to a location of an indication field of the at least one TCI state ID corresponding to the codepoint in the indication information.

8. The method of claim 7, further comprising:

determining that the TCI state corresponding to the at least one TCI state ID is at least one of the joint TCI state or the separate TCI state according to the number of TCI state ID(s) corresponding to the codepoint;

wherein determining that the TCI state corresponding to the at least one TCI state ID is at least one of the joint TCI state or the separate TCI state according to the number of TCI state ID(s) corresponding to the codepoint comprises:

in response to the number of TCI state ID(s) corresponding to the codepoint being one, determining that the TCI state corresponding to the one TCI state ID corresponding to the codepoint is the separate TCI state and the separate TCI state is a separate DL TCI state or a separate UL TCI state, wherein the separate DL TCI state is configured for downlink reception and the separate UL TCI state is configured for uplink transmission.

9. The method of claim 7, further comprising:

determining that the TCI state corresponding to the at least one TCI state ID is at least one of the joint TCI state or the separate TCI state according to the number of TCI state ID(s) corresponding to the codepoint;

wherein determining that the TCI state corresponding to the at least one TCI state ID is at least one of the joint TCI state or the separate TCI state according to the number of TCI state ID(s) corresponding to the codepoint comprises:

in response to the number of TCI state ID(s) corresponding to the codepoint being multiple, and the plurality of TCI state IDs or TCI states corresponding to the plurality of TCI state IDs being different, determining that the TCI states corresponding to the plurality of TCI state IDs corresponding to the codepoint are the separate TCI state, a TCI state corresponding to a first TCI state ID among the plurality of TCI state IDs is a separate DL TCI state, and a TCI state corresponding to a second TCI state ID among the plurality of TCI state IDs is a separate UL TCI state, wherein the separate DL TCI state is configured for downlink reception and the separate UL TCI state is configured for uplink transmission.

10. The method of claim 7, further comprising:

determining that the TCI state corresponding to the at least one TCI state ID is at least one of the joint TCI state or the separate TCI state according to the number of TCI state ID(s) corresponding to the codepoint;

wherein determining that the TCI state corresponding to the at least one TCI state ID is at least one of the joint TCI state or the separate TCI state according to the number of TCI state

ID(s) corresponding to the codepoint comprises:

in response to the number of TCI state ID(s) corresponding to the codepoint being multiple, and TCI states corresponding to the plurality of TCI state IDs being the same, determining that the TCI state corresponding to the plurality of TCI state IDs corresponding to the codepoint is the joint TCI state and the joint TCI state is configured for downlink reception and uplink transmission.

11. The method of claim 6 or 7, further comprising:

determining that the separate TCI state corresponding to the TCI state ID is suitable for at least one of uplink transmission or downlink reception according to the ID value of the at least one TCI state ID corresponding to the codepoint;

wherein determining that the separate TCI state corresponding to the TCI state ID is suitable for at least one of uplink transmission or downlink reception according to the ID value of the at least one TCI state ID corresponding to the codepoint comprises:

determining a value range of a TCI state ID corresponding to a TCI state for uplink transmission and a value range of a TCI state ID corresponding to a TCI state for downlink reception according to at least one of default rules or configuration information.

12. The method of claim 6 or 7, further comprising:

determining that the separate TCI state corresponding to the TCI state ID is suitable for at least one of uplink transmission or downlink reception according to the TCI state pool ID to which the at least one TCI state ID corresponding to the codepoint belongs;

wherein the indication information further comprises the TCI state pool ID to which the at least one TCI state ID corresponding to the codepoint belongs, and a TCI state pool ID to which a TCI state ID corresponding to a TCI state for uplink transmission and a TCI state pool ID to which a TCI state ID corresponding to a TCI state for downlink reception are different.

13. The method of claim 6 or 7, further comprising:

determining that the separate TCI state corresponding to the TCI state ID is suitable for at least one of uplink transmission or downlink reception according to the uplink and downlink purpose information of the at least one TCI state ID corresponding to the codepoint;

wherein the indication information further comprises the uplink and downlink purpose information of the at least one TCI state ID corresponding to the codepoint, and the uplink and downlink purpose information comprises any of: for uplink transmission, for downlink reception, or for uplink transmission and downlink reception.

14. The method of claim 6 or 7, further comprising:

determining that the separate TCI state corresponding to the TCI state ID is suitable for at least one of uplink transmission or downlink reception according to the TCI state information of the at least one TCI state ID corresponding to the codepoint;

wherein the TCI state information comprises at least one of:

a reference signal type corresponding to a quasi-co-location (QCL) type D in the TCI state; or

a purpose of a reference signal in the TCI state.

15. The method of claim 6 or 7, further comprising:

determining that the TCI state ID is suitable for at least one of uplink transmission or downlink reception according to the location of the indication field of the at least one TCI state ID corresponding to the codepoint in the indication information;

wherein a first TCI state ID indication field corresponding to the codepoint indicates the joint TCI state or a separate DL TCI state and a second TCI state ID indication field corresponding to the codepoint indicates the joint TCI state or a separate UL TCI state; or

a first TCI state ID indication field corresponding to the codepoint indicates the joint TCI state or a separate UL TCI state and a second TCI state ID indication field corresponding to the codepoint indicates the joint TCI state or a separate DL TCI state.

16. The method of any one of claims 1 to 15, wherein the indication information further comprises at least one second indication field, the second indication field is in one-to-one correspondence with a TCI state ID indication field corresponding to the codepoint, and the second indication field indicates whether or not a TCI state ID in one TCI state ID indication field corresponding to the codepoint appears.

17. The method of any one of claims 1 to 16, wherein obtaining the indication information transmitted by the base station comprises:

obtaining the indication information transmitted by a medium access control control element (MACCE) signaling;

wherein the uplink transmission comprises at least one of: physical uplink control channel (PUCCH) transmission, physical uplink shared channel (PUSCH) transmission, physical random access channel (PRACH) transmission, demodulation reference signal (DMRS) transmission, uplink scheduling requesting (SR) transmission, or sounding reference signal (SRS) transmission;

the downlink reception comprises at least one of: physical downlink control channel (PDCCH) transmission, physical downlink shared channel (PDSCH) transmission, physical broadcast channel (PBCH) transmission, synchronization signal block (SSB) transmission, DMRS transmission, channel state information reference signal (CSI-RS) transmission, positioning reference signal (PRS) transmission, or tracking reference signal (TRS) transmission.

18. A method for information indication, performed by a base station, comprising:

transmitting indication information to a user equipment (UE), wherein the indication information comprises at least one transmission configuration indication (TCI) state index (ID) corresponding to at least one codepoint, to enable the UE to perform at least one of: determining that a TCI state corresponding to the at least one TCI state ID is at least one of a joint TCI state or a separate TCI state or determining that the TCI state is suitable for at least one of uplink transmission or downlink reception according to a number of TCI state ID(s) corresponding to the codepoint.

19. A device, comprising: a transceiver; a memory; and a processor, connected to the transceiver and the memory respectively, configured to, by executing computer-executable instructions on the memory, control wireless signal transmission and reception of the transceiver and perform the method of any one of claims 1 to 17 or the method of claim 18.

20. A computer storage medium, wherein the computer storage medium stores computer-

executable instructions; when the computer-executable instructions are executed by a processor of a device, the method of any one of claims 1 to 18 is performed.